

ISS and Human Research Project Office Highlights March 25, 2011

ISS Research Project

Return of DEvice for the study of Critical LIquids and Crystallization (DECLIC) hardware on the Shuttle Discovery marks a major milestone for the Supercritical Water Mixture (SCWM) experiment.

A critical piece of DECLIC hardware was successfully returned from the ISS on the Shuttle Discovery's final flight. This hardware, the High Temperature Insert (HTI), will be refurbished and returned to the ISS in approximately one year to perform a second high temperature/high pressure experiment known as SCWM. This experiment is a collaborative ISS investigation between scientists at NASA-GRC and the French space agency, Centre National d'Etudes Spatiales (CNES) and is designed to study phase change, solute precipitation, and precipitate transport in a salt-water mixture at near-critical and supercritical conditions. The refurbished insert, referred to as the HTI-Reflight, will be provided by CNES in exchange for down-mass and re-launch commitments from NASA. Informal agreements to provide for these exchanges have been put in place and a formal Letter of Agreement specifying the roles and responsibilities of each partner is currently under final review by the State Department. Results from the SCWM experiment will provide a better understanding of the often limiting contamination and corrosion issues caused by salt precipitation in many of the current applications of supercritical water oxidation technologies. (POC: REC/Michael Hicks, (216) 433-6576)